Washington State Institute for Public Policy

Benefit-Cost Results

Class size: reducing average class size by one student in kindergarten

Benefit-cost estimates updated August 2014. Literature review updated January 2013.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our technical documentation.

Program Description: Washington State's prototypical school funding formula allocates funding for an average class size of 25.23 students in grades K through 3 (RCW 28A.150.260). We estimate the benefits and costs of reducing kindergarten average class sizes by one student.

Benefit-Cost Summary

Program benefits	
Participants	$855
Taxpayers	$475
Other (1)	$352
Other (2)	($49)
Total	$1,633
Costs	($204)
Benefits minus cost	$1,430

Summary statistics	
Benefit to cost ratio	$8.02
Benefits minus costs	$1,430
Probability of a positive net present value	95 %

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2013). The economic discount rates and other relevant parameters are described in our technical documentation.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to: Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Crime	$0	$0	$0	$0	$0
Labor market earnings (hs grad)	$869	$370	$429	$0	$1,668
Health care (educational attainment)	($13)	$105	($77)	$53	$67
Adjustment for deadweight cost of program	$0	$0	$0	($102)	($102)
Totals	$855	$475	$352	($49)	$1,633

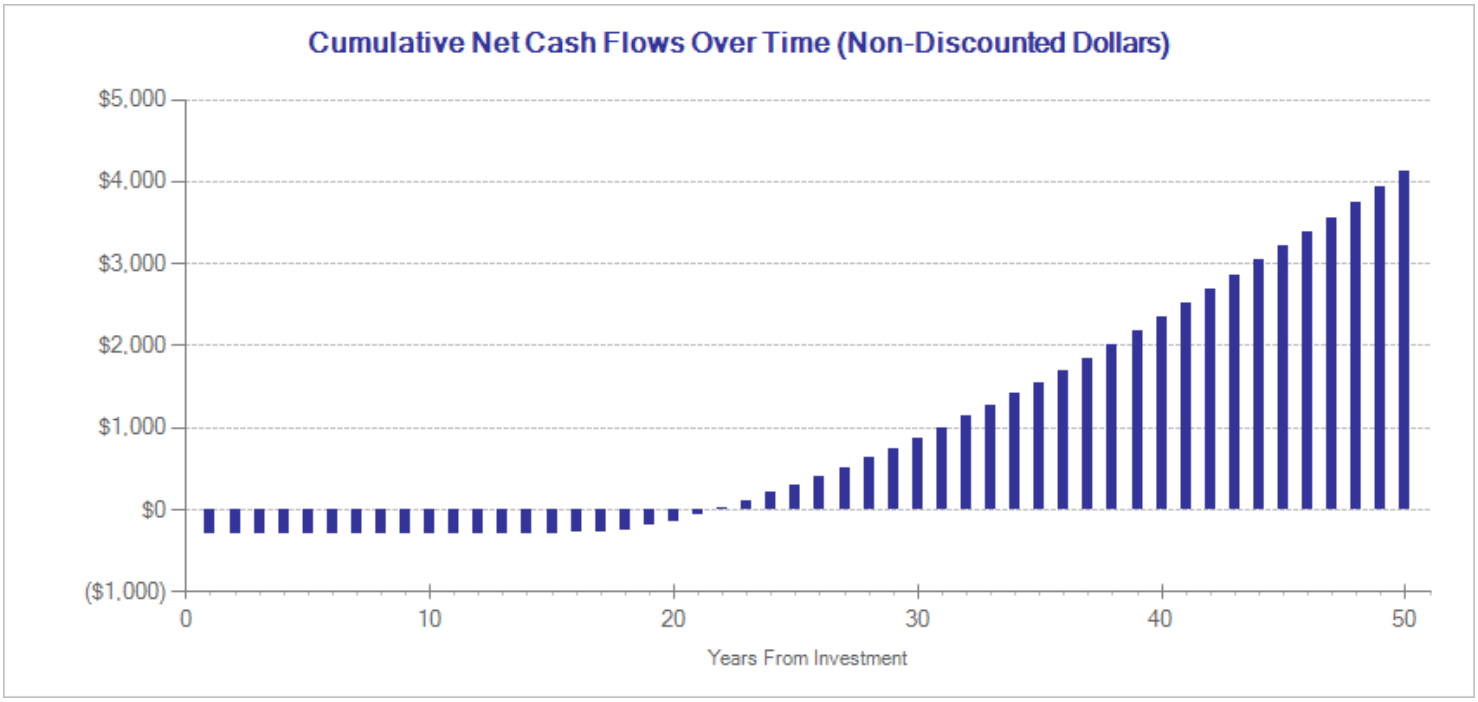
We created the two "other" categories to report results that do not fit neatly in the "participant" or "taxpayer" perspectives. In the "Other (1)" category we include the benefits of reductions in crime victimization and the economic spillover benefits of improvement in human capital outcomes. In the "Other (2)" category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$198	1	2011	Present value of net program costs (in 2013 dollars)	($204)
Comparison costs	$0	1	2011	Uncertainty (+ or - %)	0 %

These costs account for state and school district teacher salary and benefits expenses, along with some other marginal operating costs. We also include increased capital cost amortization in this estimate. Aos, S. & Pennucci, A. (2013). K–12 Class Size Reductions and Student Outcomes: A Review of the Evidence and Benefit-Cost Analysis (Document No. 13-01-2201). Olympia: Washington State Institute for Public Policy

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta analysis. The uncertainty range is used in Monte Carlo risk analysis, described in our technical documentation.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Unadjusted effect size (random effects model)		Adjusted effect sizes and standard errors used in the benefit-cost analysis					
					First time ES is estimated			Second time ES is estimated		
			ES	p-value	ES	SE	Age	ES	SE	Age
High school graduation	Primary	77	0.015	0.005	0.015	0.005	5	0.015	0.005	17
Test scores	Primary	77	0.036	0.005	0.036	0.013	5	0.011	0.005	17

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